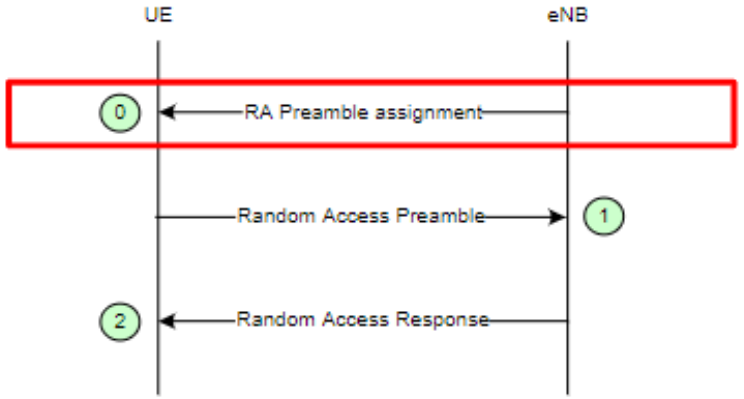
Exhibit E

Exhibit E – U.S. Patent No. 10,985,956

Toyota makes, uses, tests, offers for sale, sells, and/or imports vehicles that comply, operate in accordance, and/or are configured in accordance with 36 Series of one or more of 3GPP releases 8-16. Such vehicles are collectively referred to as the "Accused Products." The Accused Products include Toyota and Lexus-branded vehicles that support LTE and that were made in, used in, tested in, offered for sale in, sold in, or imported into the United States by Toyota at some point in time since 2018. Each of the Accused Products supports LTE and, thus, includes the features and functionality identified in this chart. The features and functionality identified in this chart cause the Accused Products to practice the asserted claims of U.S. Patent No. 10,985,956 (the "'956 patent").

Claim 1	Accused Products
[PRE] A method for use in a mobile subscriber station, the method comprising:	An Accused Product configured to operate on an LTE network is a subscriber station. As evidenced below, the Accused Products perform the claimed method when operating on an LTE network.
[A][1] receiving an assignment of a single access identifier from a subset of access identifiers of a plurality of access identifiers,	As evidenced below, an Accused Product operating on an LTE network receives an assignment of a single access identifier from a subset of access identifiers of a plurality of access identifiers.

Claim 1	Accused Products
	10.1.5.2 Non-contention based random access procedure The non-contention based random access procedure is outlined on Figure 10.1.5.2-1 below:  **Figure 10.1.5.2-1: Non-contention based Random Access Procedure** **Source:** TS 36.300,[1] p. 54

[1] 3GPP TS 36.300 V8.12.0 (2010-03), Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN) Overall description, Stage 2 (Release 8)

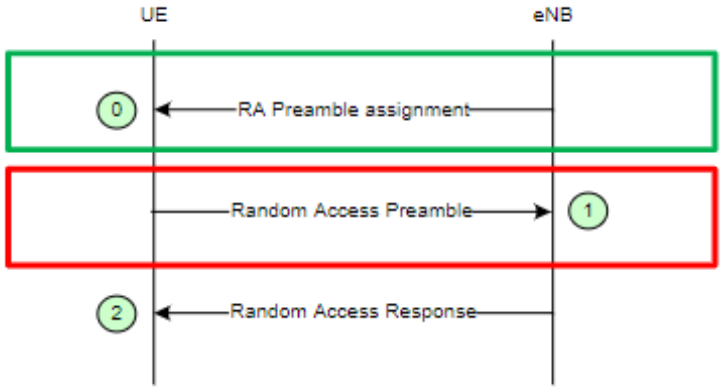
Claim 1	Accused Products
	The three steps of the non-contention based random access procedures are: 0) Random Access Preamble assignment via dedicated signalling in DL: - eNB assigns to UE a non-contention Random Access Preamble (a Random Access Preamble not within the set broadcasted on BCH). - Signalled via: - HO command generated by target eNB and sent via source eNB for handover; - PDCCH in case of DL data arrival. 1) Random Access Preamble on RACH in uplink: - UE transmits the assigned non-contention Random Access Preamble. 2) Random Access Response on DL-SCH: - Semi-synchronous (within a flexible window of which the size is one or more TTI) with message 1; - No HARQ; - Addressed to RA-RNTI on PDCCH; - Conveys at least: - Timing Alignment information and initial UL grant for handover; - Timing Alignment information for DL data arrival; - RA-preamble identifier. - Intended for one or multiple UEs in one DL-SCH message. **Source:** TS 36.300, p. 54

Claim 1	Accused Products

	– *RACH-ConfigDedicated*
	The IE *RACH-ConfigDedicated* is used to specify the dedicated random access parameters.
	***RACH-ConfigDedicated* information element**
	`-- ASN1START`
	`RACH-ConfigDedicated ::= SEQUENCE {`
	`ra-PreambleIndex INTEGER (0..63),`
	`ra-PRACH-MaskIndex INTEGER (0..15)`
	`}`
	`-- ASN1STOP`
	RACH-ConfigDedicated field descriptions
	ra-PreambleIndex
	Explicitly signalled Random Access Preamble for RA Resource selection in TS 36.321 [6].
	ra-PRACH-MaskIndex
	Explicitly signalled PRACH Mask Index for RA Resource selection in TS 36.321 [6].
	Source: TS 36.331,[2] p. 128

[A][2] the assigned single access identifier is not randomly selected by the mobile subscriber station,	As evidenced below, the assigned single access identifier is not randomly selected by the mobile subscriber station. 5.1.2 Random Access Resource selection The Random Access Resource selection procedure shall be performed as follows: - If *ra-PreambleIndex* (Random Access Preamble) and *ra-PRACH-MaskIndex* (PRACH Mask Index) have been explicitly signalled and *ra-PreambleIndex* is not 000000: - the Random Access Preamble and the PRACH Mask Index are those explicitly signalled.

[2] 3GPP TS 36.331 V8.21.0 (2014-06), Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification (Release 8)

Claim 1	Accused Products
	Source: 36.321,[3] p. 13
[A][3] the assigned single access identifier useable for random access channel transmission,	As evidenced below, the assigned single access identifier is useable for random access channel transmission. 10.1.5.2 Non-contention based random access procedure The non-contention based random access procedure is outlined on Figure 10.1.5.2-1 below:  **Figure 10.1.5.2-1: Non-contention based Random Access Procedure** **Source:** TS 36.300, p. 54

[3] 3GPP TS 36.321 V8.12.0 (2012-03), Evolved Universal Terrestrial Radio Access (E-UTRA) Medium Access Control (MAC) protocol specification (Release 8)

Exhibit E – U.S. Patent No. 10,985,956

Claim 1	Accused Products
[A][4] the subset of access identifiers being access identifiers designated as allocatable access identifiers only useable, for communication with a base station, by the mobile subscriber station subsequent to assignment by the base station;	As evidenced below, the subset of access identifiers being access identifiers are designated as allocatable access identifiers only useable, for communication with a base station, by the mobile subscriber station subsequent to assignment by the base station. The three steps of the non-contention based random access procedures are: 0) Random Access Preamble assignment via dedicated signalling in DL: - eNB assigns to UE a non-contention Random Access Preamble (a Random Access Preamble not within the set broadcasted on BCH). - Signalled via: - HO command generated by target eNB and sent via source eNB for handover; - PDCCH in case of DL data arrival. 1) Random Access Preamble on RACH in uplink: - UE transmits the assigned non-contention Random Access Preamble. 2) Random Access Response on DL-SCH: - Semi-synchronous (within a flexible window of which the size is one or more TTI) with message 1; - No HARQ; - Addressed to RA-RNTI on PDCCH; - Conveys at least: - Timing Alignment information and initial UL grant for handover; - Timing Alignment information for DL data arrival; - RA-preamble identifier. - Intended for one or multiple UEs in one DL-SCH message. **Source:** TS 36.300, p. 54

Claim 1	Accused Products

	5.1.2 Random Access Resource selection
	The Random Access Resource selection procedure shall be performed as follows:
	- If *ra-PreambleIndex* (Random Access Preamble) and *ra-PRACH-MaskIndex* (PRACH Mask Index) have been explicitly signalled and *ra-PreambleIndex* is not 000000:
	- the Random Access Preamble and the PRACH Mask Index are those explicitly signalled.
	
	Source: TS 36.321, p. 13
	
	– *RACH-ConfigCommon*
	The IE *RACH-ConfigCommon* is used to specify the generic random access parameters.
	***RACH-ConfigCommon* Information element**
	`-- ASN1START`
	`RACH-ConfigCommon ::= SEQUENCE {`
	`preambleInfo SEQUENCE {`
	`numberOfRA-Preambles ENUMERATED {`
	`n4, n8, n12, n16 ,n20, n24, n28,`
	`n32, n36, n40, n44, n48, n52, n56,`
	`n60, n64},`
	[...]
	RACH-ConfigCommon field descriptions
	numberOfRA-Preambles
	Number of non-dedicated random access preambles in TS 36.321 [6]. Value is an integer. Value n4 corresponds to 4, n8 corresponds to 8 and so on.
	
	Source: TS 36.331, pp. 126-27

[B] receiving a transmission comprising an indication of the subset of access identifiers; and	As evidenced below, an Accused Product operating on an LTE network receives a transmission comprising an indication of the subset of access identifiers.

Claim 1	Accused Products
	5.1 Random Access procedure 5.1.1 Random Access Procedure initialization The Random Access procedure described in this subclause is initiated by a PDCCH order or by the MAC sublayer itself. If a UE receives a PDCCH transmission consistent with a PDCCH order [5] masked with its C-RNTI, it shall initiate a Random Access procedure. The PDCCH order or RRC optionally indicate *ra-PreambleIndex* and *ra-PRACH-MaskIndex*. Before the procedure can be initiated, the following information is assumed to be available [8]: - the available set of PRACH resources for the transmission of the Random Access Preamble, *prach-ConfigIndex*. - the groups of Random Access Preambles and the set of available Random Access Preambles in each group: The preambles that are contained in Random Access Preambles group A and Random Access Preambles group B are calculated from the parameters *numberOfRA-Preambles* and *sizeOfRA-PreamblesGroupA*: If *sizeOfRA-PreamblesGroupA* is equal to *numberOfRA-Preambles* then there is no Random Access Preambles group B. The preambles in Random Access Preamble group A are the preambles 0 to *sizeOfRA-PreamblesGroupA* – 1 and, if it exists, the preambles in Random Access Preamble group B are the preambles *sizeOfRA-PreamblesGroupA* to *numberOfRA-Preambles* – 1 from the set of 64 preambles as defined in [7]. **Source:** TS 36.321, p. 12

Claim 1	Accused Products

	5.1.2 Random Access Resource selection
	
	The Random Access Resource selection procedure shall be performed as follows:
	
	- If *ra-PreambleIndex* (Random Access Preamble) and *ra-PRACH-MaskIndex* (PRACH Mask Index) have been explicitly signalled and *ra-PreambleIndex* is not 000000:
	  - the Random Access Preamble and the PRACH Mask Index are those explicitly signalled.
	- else the Random Access Preamble shall be selected by the UE as follows:
	  - If Msg3 has not yet been transmitted, the UE shall:
	  - if Random Access Preambles group B exists and if the potential message size (data available for transmission plus MAC header and, where required, MAC control elements) is greater than *messageSizeGroupA* and if the pathloss is less than P_{CMAX} – *preambleInitialReceivedTargetPower* – *deltaPreambleMsg3* – *messagePowerOffsetGroupB*, then:
	  - select the Random Access Preambles group B;
	  - else:
	  - select the Random Access Preambles group A.
	  - else, if Msg3 is being retransmitted, the UE shall:
	  - select the same group of Random Access Preambles as was used for the preamble transmission attempt corresponding to the first transmission of Msg3.
	  - randomly select a Random Access Preamble within the selected group. The random function shall be such that each of the allowed selections can be chosen with equal probability;
	  - set PRACH Mask Index to 0.
	
	Source: TS 36.321, p. 13

Claim 1	Accused Products

	– *RACH-ConfigCommon*
	
	The IE *RACH-ConfigCommon* is used to specify the generic random access parameters.
	
	***RACH-ConfigCommon* Information element**
	
	`-- ASN1START`
	
	`RACH-ConfigCommon ::= SEQUENCE {`
	`  preambleInfo SEQUENCE {`
	`  numberOfRA-Preambles ENUMERATED {`
	`  n4, n8, n12, n16 ,n20, n24, n28,`
	`  n32, n36, n40, n44, n48, n52, n56,`
	`  n60, n64},`
	
	[...]
	
	RACH-ConfigCommon field descriptions
	numberOfRA-Preambles
	Number of non-dedicated random access preambles in TS 36.321 [6]. Value is an integer. Value n4 corresponds to 4, n8 corresponds to 8 and so on.
	
	Source: TS 36.331, pp. 126-127

Claim 1	Accused Products

	– *RadioResourceConfigCommon*
	
	The IE *RadioResourceConfigCommonSIB* and IE *RadioResourceConfigCommon* are used to specify common radio resource configurations in the system information and in the mobility control information, respectively, e.g., the random access parameters and the static physical layer parameters.
	
	***RadioResourceConfigCommon* Information element**
	
	`-- ASN1START`
	
	`RadioResourceConfigCommonSIB ::= SEQUENCE {`
	`  rach-ConfigCommon RACH-ConfigCommon,`
	`  bcch-Config BCCH-Config,`
	`  pcch-Config PCCH-Config,`
	`  prach-Config PRACH-ConfigSIB,`
	`  pdsch-ConfigCommon PDSCH-ConfigCommon,`
	`  pusch-ConfigCommon PUSCH-ConfigCommon,`
	`  pucch-ConfigCommon PUCCH-ConfigCommon,`
	`  soundingRS-UL-ConfigCommon SoundingRS-UL-ConfigCommon,`
	`  uplinkPowerControlCommon UplinkPowerControlCommon,`
	`  ul-CyclicPrefixLength UL-CyclicPrefixLength,`
	`  ...`
	`}`
	
	Source: TS 36.331, p. 128

Claim 1	Accused Products

5.2.2.9 Actions upon reception of *SystemInformationBlockType2*

Upon receiving *SystemInformationBlockType2*, the UE shall:

1> if upper layers indicate that a (UE specific) paging cycle is configured:

2> Apply the shortest of the (UE specific) paging cycle and the *defaultPagingCycle* included in the *radioResourceConfigCommon*;

1> else:

2> Apply the *defaultPagingCycle* included in the *radioResourceConfigCommon*;

1> if the *mbsfn-SubframeConfigList* is included:

2> consider that no other DL assignments occur in the MBSFN subframes indicated in the IE *mbsfn-SubframeConfigList*:

1> apply the configuration included in the *radioResourceConfigCommon*;

1> apply the specified PCCH configuration defined in 9.1.1.3;

1> not apply the *timeAlignmentTimerCommon*;

1> if in RRC_CONNECTED while T311 is not running; and the UE supports multi-band cells as defined by bit 31 in *featureGroupIndicators*:

2> disregard the *additionalSpectrumEmission* and *ul-CarrierFreq*, if received, while in RRC_CONNECTED;

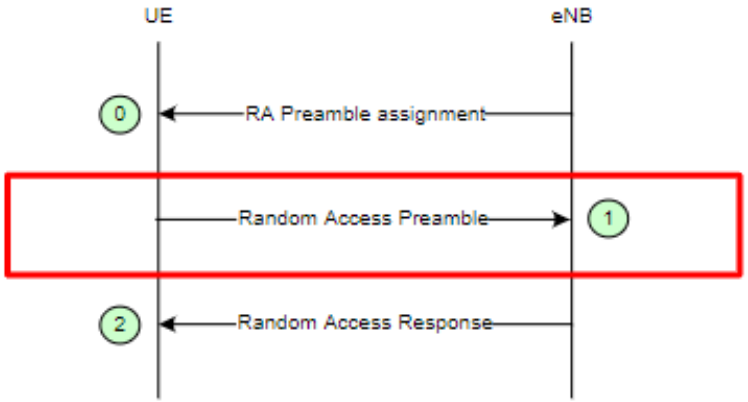
Source: TS 36.331, pp. 25-26

5.2 System information

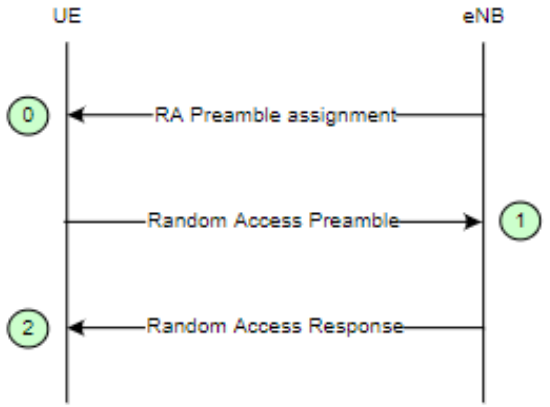
5.2.1 Introduction

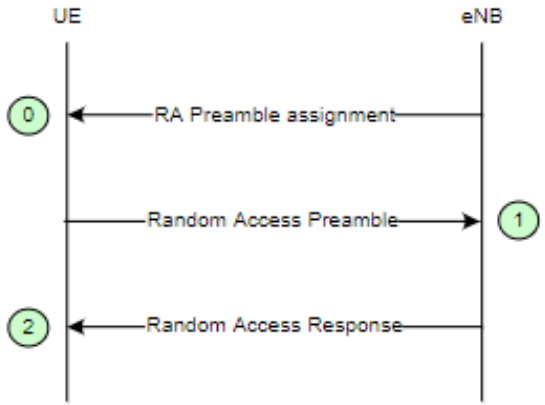
5.2.1.1 General

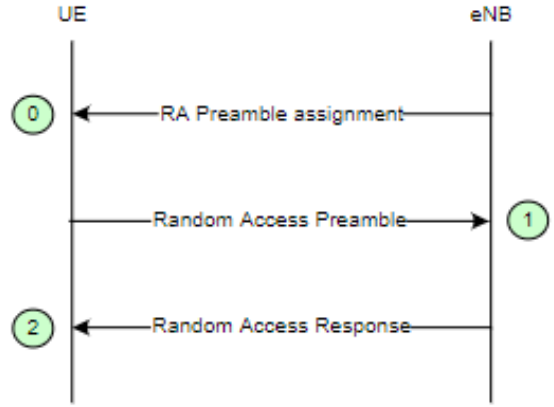
System information is divided into the *MasterInformationBlock* (MIB) and a number of *SystemInformationBlocks* (SIBs). The MIB includes a limited number of most essential and most frequently transmitted parameters that are needed to acquire other information from the cell, and is transmitted on BCH. SIBs other than *SystemInformationBlockType1* are carried in *SystemInformation* (SI) messages and mapping of SIBs to SI messages is flexibly configurable by *schedulingInfoList* included in *SystemInformationBlockType1*, with restrictions that: each SIB is contained only in a single SI message, only SIBs having the same scheduling requirement (periodicity) can be mapped to the same SI message, and *SystemInformationBlockType2* is always mapped to the SI message that corresponds to the first entry in the list of SI messages in *schedulingInfoList*. There may be multiple SI messages transmitted with the same periodicity. *SystemInformationBlockType1* and all SI messages are transmitted on DL-SCH.

Claim 1	Accused Products
	Source: TS 36.331, p. 21
[C][1] transmitting, from the mobile subscriber station to the base station, the assigned single access identifier via the random access channel,	As evidenced below, an Accused Product operating on an LTE network transmits, from the mobile subscriber station to the base station, the assigned single access identifier via the random access channel. 10.1.5.2 Non-contention based random access procedure The non-contention based random access procedure is outlined on Figure 10.1.5.2-1 below:  **Figure 10.1.5.2-1: Non-contention based Random Access Procedure** **Source:** TS 36.300, p. 54

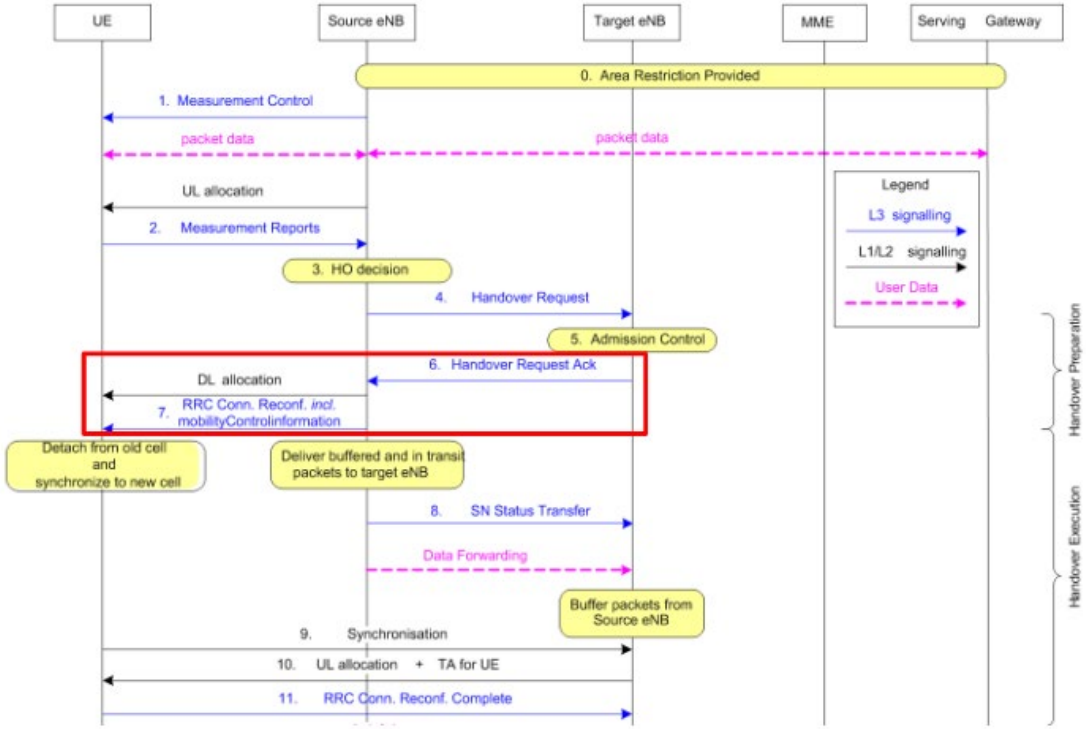
Claim 1	Accused Products
	The three steps of the non-contention based random access procedures are: 0) Random Access Preamble assignment via dedicated signalling in DL: - eNB assigns to UE a non-contention Random Access Preamble (a Random Access Preamble not within the set broadcasted on BCH). - Signalled via: - HO command generated by target eNB and sent via source eNB for handover; - PDCCH in case of DL data arrival. 1) Random Access Preamble on RACH in uplink: - UE transmits the assigned non-contention Random Access Preamble. 2) Random Access Response on DL-SCH: - Semi-synchronous (within a flexible window of which the size is one or more TTI) with message 1; - No HARQ; - Addressed to RA-RNTI on PDCCH; - Conveys at least: - Timing Alignment information and initial UL grant for handover; - Timing Alignment information for DL data arrival; - RA-preamble identifier. - Intended for one or multiple UEs in one DL-SCH message. **Source:** TS 36.300, p. 54
[C][2] the assigned single access identifier uniquely identifying the mobile subscriber station to the base station according to the assignment,	As evidenced below, the assigned single access identifier uniquely identifies the mobile subscriber station to the base station according to the assignment.

Claim 1	Accused Products
	5.1.2 Random Access Resource selection The Random Access Resource selection procedure shall be performed as follows: - If *ra-PreambleIndex* (Random Access Preamble) and *ra-PRACH-MaskIndex* (PRACH Mask Index) have been explicitly signalled and *ra-PreambleIndex* is not 000000: - the Random Access Preamble and the PRACH Mask Index are those explicitly signalled. **Source:** TS 36.321, p. 13 10.1.5.2 Non-contention based random access procedure The non-contention based random access procedure is outlined on Figure 10.1.5.2-1 below:  **Figure 10.1.5.2-1: Non-contention based Random Access Procedure** **Source:** TS 36.300, p. 54

Claim 1	Accused Products
[C][3] the assigned single access identifier avoids a collision probability associated with access identifiers randomly selected by another mobile subscriber station, and	As evidenced below, the assigned single access identifier avoids a collision probability associated with access identifiers randomly selected by another mobile subscriber station. 10.1.5.2 Non-contention based random access procedure The non-contention based random access procedure is outlined on Figure 10.1.5.2-1 below:  **Figure 10.1.5.2-1: Non-contention based Random Access Procedure** **Source:** TS 36.300, p. 54
[C][4] the assigned single access identifier avoids a collision probability associated with other access identifiers in the subset of access identifiers transmitted by another mobile subscriber station.	As evidenced below, the assigned single access identifier avoids a collision probability associated with other access identifiers in the subset of access identifiers transmitted by another mobile subscriber station.

Claim 1	Accused Products
	10.1.5.2 Non-contention based random access procedure The non-contention based random access procedure is outlined on Figure 10.1.5.2-1 below:  **Figure 10.1.5.2-1: Non-contention based Random Access Procedure** **Source:** TS 36.300, p. 54

Claim 2	Accused Products
The method of claim 1, wherein the assigned single access identifier is used for handover to the base station.	As evidenced below, the assigned single access identifier is used for handover to the base station.

Claim 2	Accused Products
	 **Source:** TS 36.300, p. 45

Claim 2	Accused Products
	6 Target eNB prepares HO with L1/L2 and sends the HANDOVER REQUEST ACKNOWLEDGE to the source eNB. The HANDOVER REQUEST ACKNOWLEDGE message includes a transparent container to be sent to the UE as an RRC message to perform the handover. The container includes a new C-RNTI, target eNB security algorithm identifiers for the selected security algorithms, may include a dedicated RACH preamble, and possibly some other parameters i.e. access parameters, SIBs, etc. The HANDOVER REQUEST ACKNOWLEDGE message may also include RNL/TNL information for the forwarding tunnels, if necessary. NOTE: As soon as the source eNB receives the HANDOVER REQUEST ACKNOWLEDGE, or as soon as the transmission of the handover command is initiated in the downlink, data forwarding may be initiated. Steps 7 to 16 provide means to avoid data loss during HO and are further detailed in 10.1.2.1.2 and 10.1.2.3. 7 The target eNB generates the RRC message to perform the handover, i.e *RRCConnectionReconfiguration* message including the *mobilityControlInformation*, to be sent by the source eNB towards the UE. The source eNB performs the necessary integrity protection and ciphering of the message. The UE receives the *RRCConnectionReconfiguration* message with necessary parameters (i.e. new C-RNTI, target eNB security algorithm identifiers, and optionally dedicated RACH preamble, target eNB SIBs, etc.) and is commanded by the source eNB to perform the HO. The UE does not need to delay the handover execution for delivering the HARQ/ARQ responses to source eNB. **Source:** TS36.300, p. 46

Claim 3	Accused Products
The method of claim 1, further comprising: [A] adjusting at least one operating parameter of a transmission from the mobile subscriber station to the base station; and	As evidenced below, an Accused Product operating on an LTE network adjusts at least one operating parameter of a transmission from the mobile subscriber station to the base station.

Claim 3	Accused Products
	5.1.4 Random Access Response reception [...] - If a downlink assignment for this TTI has been received on the PDCCH for the RA-RNTI and the received TB is successfully decoded, the UE shall regardless of the possible occurrence of a measurement gap: - if the Random Access Response contains a Backoff Indicator subheader: - set the backoff parameter value in the UE as indicated by the BI field of the Backoff Indicator subheader and Table 7.2-1. - else, set the backoff parameter value in the UE to 0 ms. - if the Random Access Response contains a Random Access Preamble identifier corresponding to the transmitted Random Access Preamble (see subclause 5.1.3), the UE shall: - consider this Random Access Response reception successful; - process the received Timing Advance Command (see subclause 5.2); **Source:** TS 36.321, p. 14

Claim 3	Accused Products

	5.2 Maintenance of Uplink Time Alignment
	
	The UE has a configurable timer *timeAlignmentTimer* which is used to control how long the UE is considered uplink time aligned [8].
	
	The UE shall:
	
	- when a Timing Advance Command MAC control element is received:
	  - apply the Timing Advance Command;
	  - start or restart *timeAlignmentTimer*.
	- when a Timing Advance Command is received in a Random Access Response message:
	  - if the Random Access Preamble was not selected by UE MAC:
	  - apply the Timing Advance Command;
	  - start or restart *timeAlignmentTimer*.
	
	Source: TS 36.321, p. 17

Claim 3	Accused Products
	4.2.3 Transmission timing adjustments Upon reception of a timing advance command, the UE shall adjust its uplink transmission timing for PUCCH/PUSCH/SRS. The timing advance command indicates the change of the uplink timing relative to the current uplink timing as multiples of 16 T_s. The start timing of the random access preamble is specified in [3]. In case of random access response, 11-bit timing advance command [8], T_A, indicates N_{TA} values by index values of T_A = 0, 1, 2, ..., 1282, where an amount of the time alignment is given by $N_{TA} = T_A \times 16$. N_{TA} is defined in [3]. In other cases, 6-bit timing advance command [8], T_A, indicates adjustment of the current N_{TA} value, $N_{TA,old}$, to the new N_{TA} value, $N_{TA,new}$, by index values of T_A = 0, 1, 2,..., 63, where $N_{TA,new} = N_{TA,old} + (T_A - 31) \times 16$. Here, adjustment of N_{TA} value by a positive or a negative amount indicates advancing or delaying the uplink transmission timing by a given amount respectively. For a timing advance command received on subframe *n*, the corresponding adjustment of the timing shall apply from the beginning of subframe *n*+6. When the UE's uplink PUCCH/PUSCH/SRS transmissions in subframe *n* and subframe *n*+1 are overlapped due to the timing adjustment, the UE shall transmit complete subframe *n* and not transmit the overlapped part of subframe *n*+1. If the received downlink timing changes and is not compensated or is only partly compensated by the uplink timing adjustment without timing advance command as specified in [10], the UE changes N_{TA} accordingly. **Source:** TS 36.213,[4] p. 8
[B] releasing the assigned single access identifier subsequent to the adjusting.	As evidenced below, an Accused Product operating on an LTE network releases the assigned single access identifier subsequent to the adjusting. 5.1.6 Completion of the Random Access procedure At successful completion of the Random Access procedure, the UE shall: - discard explicitly signalled *ra-PreambleIndex* and *ra-PRACH-MaskIndex*, if any; - flush the HARQ buffer used for transmission of the MAC PDU in the Msg3 buffer.

[4] 3GPP TS 36.213 V8.8.0 (2009-09) Evolved Universal Terrestrial Radio Access (E-UTRA); Physical layer procedures (Release 8)

Claim 3	Accused Products
	Source: TS 36.321, p. 16

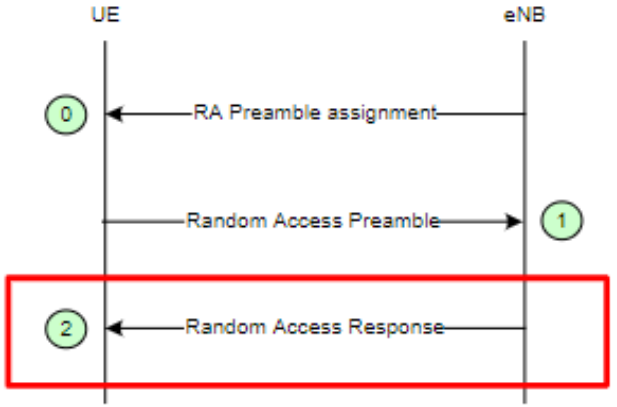
Claim 4	Accused Products

The method of claim 1, further comprising:
 	
[A] adjusting at least one operating parameter of a transmission from the mobile subscriber station to the base station; and
	As evidenced below, an Accused Product operating on an LTE network adjusts at least one operating parameter of a transmission from the mobile subscriber station to the base station.
	
	5.1.4 Random Access Response reception
	
	[...]
	
	- If a downlink assignment for this TTI has been received on the PDCCH for the RA-RNTI and the received TB is successfully decoded, the UE shall regardless of the possible occurrence of a measurement gap:
	  - if the Random Access Response contains a Backoff Indicator subheader:
	  - set the backoff parameter value in the UE as indicated by the BI field of the Backoff Indicator subheader and Table 7.2-1.
	  - else, set the backoff parameter value in the UE to 0 ms.
	  - if the Random Access Response contains a Random Access Preamble identifier corresponding to the transmitted Random Access Preamble (see subclause 5.1.3), the UE shall:
	  - consider this Random Access Response reception successful;
	  - process the received Timing Advance Command (see subclause 5.2);
	
	Source: TS 36.321, p. 14

Claim 4	Accused Products

	5.2 Maintenance of Uplink Time Alignment
	
	The UE has a configurable timer *timeAlignmentTimer* which is used to control how long the UE is considered uplink time aligned [8].
	
	The UE shall:
	
	- when a Timing Advance Command MAC control element is received:
	  - apply the Timing Advance Command;
	  - start or restart *timeAlignmentTimer*.
	- when a Timing Advance Command is received in a Random Access Response message:
	  - if the Random Access Preamble was not selected by UE MAC:
	  - apply the Timing Advance Command;
	  - start or restart *timeAlignmentTimer*.
	
	Source: TS 36.321, p. 17

Claim 4	Accused Products
	4.2.3 Transmission timing adjustments Upon reception of a timing advance command, the UE shall adjust its uplink transmission timing for PUCCH/PUSCH/SRS. The timing advance command indicates the change of the uplink timing relative to the current uplink timing as multiples of 16 T_s. The start timing of the random access preamble is specified in [3]. In case of random access response, 11-bit timing advance command [8], T_A, indicates N_{TA} values by index values of $T_A = 0, 1, 2, ..., 1282$, where an amount of the time alignment is given by $N_{TA} = T_A \times 16$. N_{TA} is defined in [3]. In other cases, 6-bit timing advance command [8], T_A, indicates adjustment of the current N_{TA} value, $N_{TA,old}$, to the new N_{TA} value, $N_{TA,new}$, by index values of $T_A = 0, 1, 2, ..., 63$, where $N_{TA,new} = N_{TA,old} + (T_A - 31) \times 16$. Here, adjustment of N_{TA} value by a positive or a negative amount indicates advancing or delaying the uplink transmission timing by a given amount respectively. For a timing advance command received on subframe n, the corresponding adjustment of the timing shall apply from the beginning of subframe $n+6$. When the UE's uplink PUCCH/PUSCH/SRS transmissions in subframe n and subframe $n+1$ are overlapped due to the timing adjustment, the UE shall transmit complete subframe n and not transmit the overlapped part of subframe $n+1$. If the received downlink timing changes and is not compensated or is only partly compensated by the uplink timing adjustment without timing advance command as specified in [10], the UE changes N_{TA} accordingly. **Source:** TS 36.213, p. 8
[B] transmitting a bandwidth request message to the base station subsequent to the adjusting.	As evidenced below, an Accused Product operating on an LTE network transmits a bandwidth request message to the base station subsequent to the adjusting. 11 When the UE has successfully accessed the target cell, the UE sends the *RRCConnectionReconfigurationComplete* message (C-RNTI) to confirm the handover, along with an uplink Buffer Status Report, whenever possible, to the target eNB to indicate that the handover procedure is completed for the UE. The target eNB verifies the C-RNTI sent in the *RRCConnectionReconfigurationComplete* message. The target eNB can now begin sending data to the UE. **Source:** TS 36.300, p. 46

Claim 5	Accused Products
The method of claim 1, further comprising: receiving, from the base station, a feedback message comprising a timing adjustment.	As evidenced below, an Accused Product operating on an LTE network receives, from the base station, a feedback message comprising a timing adjustment. 10.1.5.2 Non-contention based random access procedure The non-contention based random access procedure is outlined on Figure 10.1.5.2-1 below:  **Figure 10.1.5.2-1: Non-contention based Random Access Procedure** **Source:** TS 36.300, p. 54

Claim 5	Accused Products
	The three steps of the non-contention based random access procedures are: 0) Random Access Preamble assignment via dedicated signalling in DL: - eNB assigns to UE a non-contention Random Access Preamble (a Random Access Preamble not within the set broadcasted on BCH). - Signalled via: - HO command generated by target eNB and sent via source eNB for handover; - PDCCH in case of DL data arrival. 1) Random Access Preamble on RACH in uplink: - UE transmits the assigned non-contention Random Access Preamble. 2) Random Access Response on DL-SCH: - Semi-synchronous (within a flexible window of which the size is one or more TTI) with message 1; - No HARQ; - Addressed to RA-RNTI on PDCCH; - Conveys at least: - Timing Alignment information and initial UL grant for handover; - Timing Alignment information for DL data arrival; - RA-preamble identifier. - Intended for one or multiple UEs in one DL-SCH message. **Source:** TS 36.300, p. 54

Claim 6	Accused Products
The method of claim 5, further comprising:	As evidenced below, an Accused Product operating on an LTE network adjusting at least one operating parameter of a transmission from the mobile subscriber station to the base station based at least in part on the feedback message.

Claim 6	Accused Products
adjusting at least one operating parameter of a transmission from the mobile subscriber station to the base station based at least in part on the feedback message.	5.1.4 Random Access Response reception [...] - If a downlink assignment for this TTI has been received on the PDCCH for the RA-RNTI and the received TB is successfully decoded, the UE shall regardless of the possible occurrence of a measurement gap: - if the Random Access Response contains a Backoff Indicator subheader: - set the backoff parameter value in the UE as indicated by the BI field of the Backoff Indicator subheader and Table 7.2-1. - else, set the backoff parameter value in the UE to 0 ms. - if the Random Access Response contains a Random Access Preamble identifier corresponding to the transmitted Random Access Preamble (see subclause 5.1.3), the UE shall: - consider this Random Access Response reception successful; - process the received Timing Advance Command (see subclause 5.2); **Source:** TS 36.321, p. 14

Claim 6	Accused Products

	5.2 Maintenance of Uplink Time Alignment
	
	The UE has a configurable timer *timeAlignmentTimer* which is used to control how long the UE is considered uplink time aligned [8].
	
	The UE shall:
	
	- when a Timing Advance Command MAC control element is received:
	  - apply the Timing Advance Command;
	  - start or restart *timeAlignmentTimer*.
	- when a Timing Advance Command is received in a Random Access Response message:
	  - if the Random Access Preamble was not selected by UE MAC:
	  - apply the Timing Advance Command;
	  - start or restart *timeAlignmentTimer*.
	
	Source: TS 36.321, p. 17

Claim 6	Accused Products
	4.2.3 Transmission timing adjustments Upon reception of a timing advance command, the UE shall adjust its uplink transmission timing for PUCCH/PUSCH/SRS. The timing advance command indicates the change of the uplink timing relative to the current uplink timing as multiples of 16 T_s. The start timing of the random access preamble is specified in [3]. In case of random access response, 11-bit timing advance command [8], T_A, indicates N_{TA} values by index values of T_A = 0, 1, 2, ..., 1282, where an amount of the time alignment is given by $N_{TA} = T_A \times 16$. N_{TA} is defined in [3]. In other cases, 6-bit timing advance command [8], T_A, indicates adjustment of the current N_{TA} value, $N_{TA,old}$, to the new N_{TA} value, $N_{TA,new}$, by index values of T_A = 0, 1, 2,..., 63, where $N_{TA,new} = N_{TA,old} + (T_A - 31) \times 16$. Here, adjustment of N_{TA} value by a positive or a negative amount indicates advancing or delaying the uplink transmission timing by a given amount respectively. For a timing advance command received on subframe n, the corresponding adjustment of the timing shall apply from the beginning of subframe $n+6$. When the UE's uplink PUCCH/PUSCH/SRS transmissions in subframe n and subframe $n+1$ are overlapped due to the timing adjustment, the UE shall transmit complete subframe n and not transmit the overlapped part of subframe $n+1$. If the received downlink timing changes and is not compensated or is only partly compensated by the uplink timing adjustment without timing advance command as specified in [10], the UE changes N_{TA} accordingly. **Source:** TS 36.213, p. 8

Claim 7	Accused Products
The method of claim 1, wherein the assignment of the single access identifier from the subset of access identifiers is received by the mobile subscriber station in a dedicated message.	As evidenced below, the assignment of the single access identifier from the subset of access identifiers is received by the mobile subscriber station in a dedicated message.

Claim 7	Accused Products
	The three steps of the non-contention based random access procedures are: 0) Random Access Preamble assignment via dedicated signalling in DL: - eNB assigns to UE a non-contention Random Access Preamble (a Random Access Preamble not within the set broadcasted on BCH). - Signalled via: - HO command generated by target eNB and sent via source eNB for handover; - PDCCH in case of DL data arrival. 1) Random Access Preamble on RACH in uplink: - UE transmits the assigned non-contention Random Access Preamble. 2) Random Access Response on DL-SCH: - Semi-synchronous (within a flexible window of which the size is one or more TTI) with message 1; - No HARQ; - Addressed to RA-RNTI on PDCCH; - Conveys at least: - Timing Alignment information and initial UL grant for handover; - Timing Alignment information for DL data arrival; - RA-preamble identifier. - Intended for one or multiple UEs in one DL-SCH message. **Source:** TS 36.300, p. 54

Claim 7	Accused Products

	– *RACH-ConfigDedicated*
	The IE *RACH-ConfigDedicated* is used to specify the dedicated random access parameters.
	***RACH-ConfigDedicated* information element**
	`-- ASN1START`
	`RACH-ConfigDedicated ::= SEQUENCE {`
	`ra-PreambleIndex INTEGER (0..63),`
	`ra-PRACH-MaskIndex INTEGER (0..15)`
	`}`
	`-- ASN1STOP`
	RACH-ConfigDedicated field descriptions
	ra-PreambleIndex
	Explicitly signalled Random Access Preamble for RA Resource selection in TS 36.321 [6].
	ra-PRACH-MaskIndex
	Explicitly signalled PRACH Mask Index for RA Resource selection in TS 36.321 [6].
	Source: TS 36.331, p. 127

Claim 8	Accused Products
The method of claim 1, wherein the assignment of the single access identifier from the subset of access identifiers is received in at least one Orthogonal Frequency Division Multiplex (OFDM) symbol of a plurality of OFDM symbols.	As evidenced below, the assignment of the single access identifier from the subset of access identifiers is received in at least one Orthogonal Frequency Division Multiplex (OFDM) symbol of a plurality of OFDM symbols.

Claim 8	Accused Products
	5.1 Downlink Transmission Scheme 5.1.1 Basic transmission scheme based on OFDM The downlink transmission scheme is based on conventional OFDM using a cyclic prefix. The OFDM sub-carrier spacing is Δf = 15 kHz. 12 consecutive sub-carriers during one slot correspond to one downlink *resource block*. In the frequency domain, the number of resource blocks, N_{RB}, can range from $N_{RB\text{-}min}$ = 6 to $N_{RB\text{-}max}$ = 110. In addition there is also a reduced sub-carrier spacing Δf_{low} = 7.5 kHz, only for MBMS-dedicated cell. In the case of 15 kHz sub-carrier spacing there are two cyclic-prefix lengths, corresponding to seven and six OFDM symbols per slot respectively. - Normal cyclic prefix: T_{CP} = 160×Ts (OFDM symbol #0) , T_{CP} = 144×Ts (OFDM symbol #1 to #6) - Extended cyclic prefix: $T_{CP\text{-}e}$ = 512×Ts (OFDM symbol #0 to OFDM symbol #5) where T_s = 1/ (2048 × Δf) In case of 7.5 kHz sub-carrier spacing, there is only a single cyclic prefix length $T_{CP\text{-}low}$ = 1024×Ts, corresponding to 3 OFDM symbols per slot. In case of FDD, operation with half duplex from UE point of view is supported. **Source:** TS 36.300, p. 25

Claim 9	Accused Products
The method of claim 1, further comprising: [A] receiving, from the base station, a feedback message comprising a timing adjustment;	As evidenced above, an Accused Product operating on an LTE network receives, from the base station, a feedback message comprising a timing adjustment. *See* Claim 5.
[B] adjusting at least one operating parameter of a transmission from the mobile subscriber station to the base	As evidenced above, an Accused Product operating on an LTE network adjusts at least one operating parameter of a transmission from the mobile subscriber station to the base station based at least in part on the feedback message. *See* Claim 6.

Claim 9	Accused Products
station based at least in part on the feedback message;	
[C] transmitting a bandwidth request message to the base station subsequent to the adjusting; and	As evidenced above, an Accused Product operating on an LTE network transmits a bandwidth request message to the base station subsequent to the adjusting. *See* Claim 4, [B].
[D] releasing the assigned single access identifier subsequent to the adjusting,	As evidenced above, an Accused Product operating on an LTE network releases the assigned single access identifier subsequent to the adjusting. *See* Claim 3, [B].
[E] wherein the assignment of the single access identifier from the subset of access identifiers of a plurality of access identifiers is received by the mobile subscriber station in a dedicated message in at least one Orthogonal Frequency Division Multiplex (OFDM) symbol of a plurality of OFDM symbols.	As evidenced above, the assignment of the single access identifier from the subset of access identifiers of a plurality of access identifiers is received by the mobile subscriber station in a dedicated message in at least one Orthogonal Frequency Division Multiplex (OFDM) symbol of a plurality of OFDM symbols. *See* Claim 8.

Claim 10	Accused Products
The method of claim 1, wherein the assigned single access identifier is used for a specific type of request different from handover.	As evidenced below, the assigned single access identifier is used for a specific type of request different from handover.

Claim 10	Accused Products
	The three steps of the non-contention based random access procedures are: 0) Random Access Preamble assignment via dedicated signalling in DL: - eNB assigns to UE a non-contention Random Access Preamble (a Random Access Preamble not within the set broadcasted on BCH). - Signalled via: - HO command generated by target eNB and sent via source eNB for handover; - PDCCH in case of DL data arrival. 1) Random Access Preamble on RACH in uplink: - UE transmits the assigned non-contention Random Access Preamble. 2) Random Access Response on DL-SCH: - Semi-synchronous (within a flexible window of which the size is one or more TTI) with message 1; - No HARQ; - Addressed to RA-RNTI on PDCCH; - Conveys at least: - Timing Alignment information and initial UL grant for handover; - Timing Alignment information for DL data arrival; - RA-preamble identifier. - Intended for one or multiple UEs in one DL-SCH message. **Source:** TS 36.300, p. 54

Claim 11	Accused Products
The method of claim 1, wherein the assigned single access identifier is a code division multiple access (CDMA) code.	As evidenced below, the assigned single access identifier is a code division multiple access (CDMA) code.

Claim 11	Accused Products
	5.2.5 Random access preamble The physical layer random access burst consists of a cyclic prefix, a preamble, and a guard time during which nothing is transmitted. The random access preambles are generated from Zadoff-Chu sequences with zero correlation zone, ZC-ZCZ, generated from one or several root Zadoff-Chu sequences. **Source:** TS 36.300, p. 29

Claim 12	Accused Products
[PRE] A mobile subscriber station comprising:	An Accused Product is a "mobile subscriber station."
[A][1] a receiver operable to receive an assignment of a single access identifier from a subset of access identifiers of a plurality of access identifiers,	The Accused Products include hardware/software configured to receive signals when communicating using LTE (i.e., a receiver). As evidenced above, the hardware/software configured to receive signals when communicating using LTE is operable to receive an assignment of a single access identifier from a subset of access identifiers of a plurality of access identifiers. *See* Claim 1, [A][1].
[A][2] the assigned single access identifier is not randomly selected by the mobile subscriber station,	As evidenced above, the assigned single access identifier is not randomly selected by the mobile subscriber station. *See* Claim 1, [A][2].
[A][3] the assigned single access identifier useable for random access channel transmission,	As evidenced above, the assigned single access identifier is useable for random access channel transmission. *See* Claim 1, [A][3].

Claim 12	Accused Products
[A][4] the subset of access identifiers being access identifiers designated as allocatable access identifiers only useable, for communication with a base station, by the mobile subscriber station subsequent to assignment by the base station;	As evidenced above, the subset of access identifiers being access identifiers are designated as allocatable access identifiers only useable, for communication with a base station, by the mobile subscriber station subsequent to assignment by the base station. *See* Claim 1, [A][4].
[B] the receiver operable to receive a transmission comprising an indication of the subset of access identifiers; and	As evidenced above, the hardware/software configured to receive signals when communicating using LTE is operable to receive a transmission comprising an indication of the subset of access identifiers. *See* Claim 1, [B].
[C][1] a transmitter operable to transmit, from the mobile subscriber station to the base station, the assigned single access identifier via the random access channel,	The Accused Products include hardware/software configured to transmit signals when communicating using LTE (i.e., a transmitter). As evidenced above, the hardware/software configured to transmit signals when communicating using LTE is operable to transmit, from the mobile subscriber station to the base station, the assigned single access identifier via the random access channel. *See* Claim 1, [C][1].
[C][2] the assigned single access identifier uniquely identifying the mobile subscriber station to the base station according to the assignment,	As evidenced above, the assigned single access identifier uniquely identifies the mobile subscriber station to the base station according to the assignment. *See* Claim 1, [C][2].
[C][3] the assigned single access identifier avoids a collision probability associated with access identifiers randomly selected by another mobile subscriber station, and	As evidenced above, the assigned single access identifier avoids a collision probability associated with access identifiers randomly selected by another mobile subscriber station. *See* Claim 1, [C][3].

Claim 12	Accused Products
[C][4] the assigned single access identifier avoids a collision probability associated with other access identifiers in the subset of access identifiers transmitted by another mobile subscriber station.	As evidenced above, the assigned single access identifier avoids a collision probability associated with other access identifiers in the subset of access identifiers transmitted by another mobile subscriber station. *See* Claim 1, [C][4].

Claim 13	Accused Products
The mobile subscriber station of claim 12, wherein the assigned single access identifier is used for handover to the base station.	As evidenced below, the assigned single access identifier is used for handover to the base station. *See* Claim 2.

Claim 14	Accused Products
The mobile subscriber station of claim 12, further comprising: [A] a processor operable to adjust at least one operating parameter of a transmission from the mobile subscriber station to the base station,	The Accused Products include one or more processors (e.g., processor(s) in a telematics unit, processor(s) in a data communications module) configured to implement and/or support LTE communications. As evidenced above, the one or more processors are operable to adjust at least one operating parameter of a transmission from the mobile subscriber station to the base station. *See* Claim 3, [A].
[B] and to release the assigned single access identifier subsequent to the adjustment.	As evidenced above, the one or more processors are operable to release the assigned single access identifier subsequent to the adjustment. *See* Claim 3, [B]

Claim 15	Accused Products
The mobile subscriber station of claim 12, further comprising:	The Accused Products include one or more processors (e.g., processor(s) in a telematics unit, processor(s) in a data communications module) configured to implement and/or support LTE communications. As evidenced above, the one or more processors are operable to adjust at

Claim 15	Accused Products
[A] a processor operable to adjust at least one operating parameter of a transmission from the mobile subscriber station to the base station.	least one operating parameter of a transmission from the mobile subscriber station to the base station. *See* Claim 4, [A].
[B] wherein the transmitter is further operable to transmit a bandwidth request message to the base station subsequent to the adjustment.	As evidenced above, the hardware/software configured to transmit signals when communicating using LTE is operable to transmit a bandwidth request message to the base station subsequent to the adjustment. *See* Claim 4, [B].

Claim 16	Accused Products
The mobile subscriber station of claim 12, wherein the receiver is further operable to receive, from the base station, a feedback message comprising a timing adjustment.	As evidenced above, the hardware/software configured to receive signals when communicating using LTE is operable to receive, from the base station, a feedback message comprising a timing adjustment. *See* Claim 5.

Claim 17	Accused Products
The mobile subscriber station of claim 16, further comprising: a processor operable to adjust at least one operating parameter of a transmission from the mobile subscriber station to the base station based at least in part on the feedback message.	The Accused Products include one or more processors (e.g., processor(s) in a telematics unit, processor(s) in a data communications module) configured to implement and/or support LTE communications. As evidenced above, the one or more processors are operable to adjust at least one operating parameter of a transmission from the mobile subscriber station to the base station based at least in part on the feedback message. *See* Claim 6.

Claim 18	Accused Products
The mobile subscriber station of claim 12, wherein the receiver is operable to receive the assignment of the single access identifier from the subset of access identifiers in a dedicated message.	As evidenced above, the hardware/software configured to receive signals when communicating using LTE is operable to receive the assignment of the single access identifier from the subset of access identifiers in a dedicated message. *See* Claim 7.

Claim 19	Accused Products
The mobile subscriber station of claim 12, wherein the receiver is operable to receive the assignment of the access identifier from the subset of access identifiers in at least one Orthogonal Frequency Division Multiplex (OFDM) symbol of a plurality of OFDM symbols.	As evidenced above, the hardware/software configured to receive signals when communicating using LTE is operable to receive the assignment of the access identifier from the subset of access identifiers in at least one Orthogonal Frequency Division Multiplex (OFDM) symbol of a plurality of OFDM symbols. *See* Claim 8.

Claim 20	Accused Products
The mobile subscriber station of claim 12, [A] wherein the receiver is further operable to receive, from the base station, a feedback message comprising a timing adjustment, further comprising:	As evidenced above, the hardware/software configured to receive signals when communicating using LTE is operable to receive, from the base station, a feedback message comprising a timing adjustment. *See* Claim 5.
[B] a processor operable to adjust at least one operating parameter of a transmission from the mobile subscriber station to the base station	The Accused Products include one or more processors (e.g., processor(s) in a telematics unit, processor(s) in a data communications module) configured to implement and/or support LTE communications. As evidenced above, the one or more processors are operable to adjust at least one operating parameter of a transmission from the mobile subscriber station to the base station based at least in part on the feedback message. *See* Claim 6.

Claim 20	Accused Products
based at least in part on the feedback message;	
[C] the transmitter further operable to transmit a bandwidth request message to the base station subsequent to the adjustment;	As evidenced above, the hardware/software configured to transmit signals when communicating using LTE is operable to transmit a bandwidth request message to the base station subsequent to the adjustment. *See* Claim 4, [B].
[D] the processor further operable to release the assigned single access identifier subsequent to the adjustment; and	As evidenced above, the one or more processors are operable to release the assigned single access identifier subsequent to the adjustment. *See* Claim 3, [B]
[E] the receiver further operable to receive the assignment of the single access identifier from the subset of access identifiers in a dedicated message in at least one Orthogonal Frequency Division Multiplex (OFDM) symbol of a plurality of OFDM symbols.	As evidenced above, the hardware/software configured to receive signals when communicating using LTE is operable to receive the assignment of the single access identifier from the subset of access identifiers in a dedicated message in at least one Orthogonal Frequency Division Multiplex (OFDM) symbol of a plurality of OFDM symbols. *See* Claim 8.

Claim 21	Accused Products
The mobile subscriber station of claim 12, wherein the assigned single access identifier is used for a specific type of request different from handover.	As evidenced above, the assigned single access identifier is used for a specific type of request different from handover. *See* Claim 10.

Claim 22	Accused Products
The mobile subscriber station of claim 12, wherein the assigned single access identifier is a code division multiple access (CDMA) code.	As evidenced above, the assigned single access identifier is a code division multiple access (CDMA) code. *See* Claim 11.